

What is claimed is:

1 1. A tool string for use in a well, comprising:
2 an electrical conductor;
3 an electrically-activated well tool; and
4 an isolation apparatus between the electrical conductor and the well tool, the
5 isolation apparatus comprising a blocking element to enable a signal having a first
6 electrical polarity to pass through the element, and the blocking element to block a signal
7 having a second electrical polarity.

1 2. The tool string of claim 1, wherein the first electrical polarity is a negative
2 polarity, and the second electrical polarity is a positive polarity.

1 3. The tool string of claim 2, wherein the blocking element comprises one or plural
2 diodes.

1 4. The tool string of claim 2, wherein the isolation apparatus further comprises an
2 element to switch on in response to the signal of the first electrical polarity having a
3 voltage greater than a predetermined magnitude.

1 5. The tool string of claim 4, wherein the isolation apparatus further comprises a
2 fuse adapted to be blown by current passing through the fuse in response to the element
3 switching on.

1 6. The tool string of claim 5, wherein the element comprises a spark gap.

1 7. The tool string of claim 4, wherein the element comprises a clamp adapted to
2 conduct current in response to the signal of the first electrical polarity having the voltage
3 greater than the predetermined magnitude.

1

- 1 8. The tool string of claim 1, wherein the blocking element comprises plural diodes.
1
- 1 9. The tool string of claim 1, further comprising a first switch coupled to the
2 electrical conductor,
3 the first switch activatable to enable communication of a signal from the electrical
4 conductor to the electrically-activated well tool.
- 1 10. The tool string of claim 9, wherein the isolation apparatus further comprises a
2 control unit to control activation of the first switch.
- 1 11. The tool string of claim 10, wherein the isolation apparatus further comprises one
2 or more additional switches in series with the first switch, the control unit to control
3 activation of the switches.
- 1 12. The tool string of claim 1, wherein the isolation apparatus further comprises a
2 filter to block radio frequency signals from reaching the electrically-activated well tool.
- 1 13. The tool string of claim 1, further comprising a tractor, the isolation apparatus
2 between the tractor and the well tool.
- 1 14. The tool string of claim 13, wherein the tractor has a power supply, and the tractor
2 is electrically connected to the electrical conductor.
- 1 15. The tool string of claim 14, wherein the power supply comprises at least one of an
2 alternating current (AC) power supply and a direct current (DC) power supply.
- 1 16. An apparatus to isolate signaling in an electrical conduit from a downhole device,
2 the apparatus comprising:
3 a blocking element adapted to enable a signal having a first electrical polarity to
4 pass through,
5 the blocking element adapted to block a signal having a second electrical polarity.

- 1 17. The apparatus of claim 16, further comprising a clamp adapted to electrically
2 conduct in response to the signal of the first electrical polarity having greater than a
3 predetermined magnitude.
- 1 18. The apparatus of claim 17, wherein the clamp comprises a first spark gap.
- 1 19. The apparatus of claim 18, further comprising a redundant spark gap connected in
2 parallel with the first spark gap.
- 1 20. The apparatus of claim 17, further comprising a switch to block a signal in the
2 electrical conduit from the downhole component when the switch is open.
- 1 21. The apparatus of claim 20, further comprising a control unit to activate the switch
2 to electrically connect the signal in the electrical conduit to the downhole component.
- 1 22. An isolation assembly to isolate a downhole component from electrical signaling
2 in an electrical conduit, comprising:
3 a diode to block electrical signaling in the electrical conduit having a positive
4 polarity; and
5 a switch having an open state and a closed state, the switch in the open state to
6 block electrical signaling in the electrical conduit from communicating to the downhole
7 component, and the switch in the closed state to communicate electrical signaling in the
8 electrical conduit to the downhole component.
- 1 23. The isolation assembly of claim 22, further comprising a fuse in series with the
2 diode.
- 1 24. The isolation assembly of claim 23, further comprising a clamp that is adapted to
2 electrically conduct in response to electrical signaling having a negative polarity, the
3 diode to enable the electrical signaling having the negative polarity to pass through to the
4 clamp.

1 25. The isolation assembly of claim 24, wherein conduction in the clamp causes
2 blowing of the fuse.

1 26. The isolation assembly of claim 22, further comprising a control unit to activate
2 the switch between the open state and the closed state.

1 27. A method for use in a wellbore, comprising:
2 providing a tool string having an electrical conduit, an electrically-activated tool,
3 and an isolation assembly between the electrical conduit and the electrically-activated
4 tool;
5 blocking electrical signaling of a first polarity with a blocking element in the
6 isolation assembly; and
7 enabling electrical signaling of a second polarity to pass through the blocking
8 element.

1 28. The method of claim 27, wherein blocking the electrical signaling of the first
2 polarity is performed by a diode.

1 29. The isolation of claim 27, further comprising activating a switch in the isolation
2 assembly between an open state and a closed state, wherein the switch in the open state
3 blocks electrical signaling in the electrical conduit from the electrically-activated tool,
4 and the switch in the closed state enables communication of electrical signaling in the
5 electrical conduit with the electrically-activated tool.